

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE

110AFM02				
BITE VALVE ASSEMBLY, ITEM 110 ----- 0110-24777-07 (1)	2/2	Fails closed. IDB Bite Valve: Contamination or foreign matter. Damaged O-ring in mouthpiece, hole in mouthpiece, mouthpiece loose, clogged cover. DIDB Tubing Subassembly: Damaged or defective valve. Contamination or foreign matter in valve, drink tube, barb, or elbow port.	END ITEM: Unable to access drinking water. GFE INTERFACE: Assembly will not provide drinking water. MISSION: Terminate EVA. CREW/VEHICLE: Crewmember dehydration. TIME TO EFFECT /ACTIONS: Minutes. TIME AVAILABLE: N/A TIME REQUIRED: N/A REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	A. Design - IDB: The valve silicone O-ring and diaphragm cover prevents contamination from entering the bite valve assembly. The bite valve is cleaned with alcohol to remove contamination and foreign matter. The outlet valve is inserted into the bladder and wrapped tightly 7-9 times with polyester thread to prevent the outlet valve from leaking at the interface. The thread is tied off with a surgical knot and secure ends. The IDB is worn inside the HUT, which protects the valve from damage. DIDB Assembly: The disposable IDB Tubing subassembly is a 3-part assembly consisting of a silicone bite valve, a polyurethane drink tube, a nylon barb inserted into a polyolefin elbow port which is heat sealed into the bladder film interface to preclude leakage and prevent contamination. The drink tube has a 60 degree bend heat set into the tube to position the bite valve close to the crewmember's mouth. All interfaces of the Tubing subassembly are friction fit. The DIDB is contained within a reusable fabric restraint that is attached to the front wall of the HUT and protects the bladder assembly from damage. B. Test - Acceptance: Component. See inspection for acceptance. PDA: The following tests are conducted at the IDB and DIDB assembly level in accordance with ILC Document 0111-70028J(IDB) or 0111-710112(DIDB). 1. Proof pressure leakage tested in restraining fixture to 2.0 (+0.1 - 0.1)psig(IDB), 2.2 - 2.5 psig (DIDB). 2. Leak tested to verify no leakage through valve and hose assemblies. 3. Visual inspected to ensure no structural damage. Certification: IDB: 0110-82829-12: The IDB was successfully tested (manned) during SSA cert. to duplicate six years operational usage (Ref Cert. Test Report for the SSA, ILC Doc 0111-70027). The following usage reflecting requirements of significance to the IDB was documented during certification: The IDB was tested to the S/AD requirement for 144 cycles to achieve the 6-year life operational usage. 0110-82829-13/14: The following usage reflecting requirements of significance to the IDB was documented during certification, the IDB to the S/AD requirement of 144 cycles to achieve the 6-year life operational change. DIDB Assembly: The DIDB was successfully tested (manned) during certification to duplicate a single usage (with safety factor). The DIDB assembly successfully passed S/AD requirements including 640 actuations of the valve assembly to ensure proper operation.

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C. Inspection -

IDB/DIDB:

Components and materials manufactured to ILC requirements at an approved supplier are documented from procurement through shipping by the supplier. ILC incoming receiving inspection verifies that the materials received are as identified in the procurement documents, that no damage has occurred during shipment and that the supplier certifications have been received which provide traceability information.

During PDA, the following MIPs are performed at the IDB and DIDB assembly level in accordance with ILC Document 0111-70028J(IDB) or 0111-710112(DIDB). Visually inspected for material degradation or damage.

D. Failure History -

IDB:

None.

DIDB:

None.

E. Ground Turnaround -

All bladder assemblies:

During ground turnaround in accordance with FEMU-R-001, the IDB or DIDB restraint is subjected to structural and leakage (IDB only) tests and visual inspection for material damage or degradation. The DIDB bladder is not subjected to ground turn around since it is a disposable item.

F. Operational Use -

Crew Response:

Pre/Post EVA: Troubleshoot problem. If not successful, replace IDB/DIDB. If no replacement, EMU no-go for EVA.

Special Training: Standard EMU training covers this failure mode.

Operational Considerations -

Generic EVA Checklist, JSC-48023, procedures Section 3 (EMU Checkout) and 4 (EVA prep) verify hardware integrity and systems operational status prior to EVA.

Real Time Data System allows ground monitoring of EMU systems.

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-106 GLOVE ASSEMBLY
CRITICAL ITEM LIST (CIL)

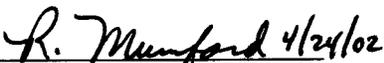
EMU CONTRACT NO. NAS 9-97150

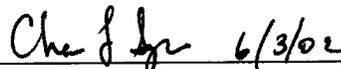
Prepared by: 
HS - Project Engineering

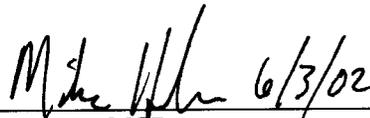
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NASA - SSA/SSM

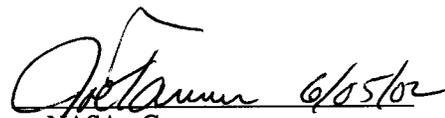

HS - Reliability

 5/23/02
NASA - EMU/SSM

 4/24/02
HS - Engineering Manager

 6/3/02
NASA - S & MA

 6/3/02
NASA - MOD

 6/5/02
NASA - Crew

 6/3/02
NASA - Program Manager